AMENDMENTS TO THE CLAIMS

The listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims:

1. **(Previously Presented)** A method of fabricating a tunnel junction of a vertical cavity surface emitting laser (VCSEL), comprising:

locating a substrate in an MOCVD chamber;

setting a temperature of the MOCVD chamber between 500 °C and 650 °C; and

growing a tunnel junction including $GaAs_{(1-x)}Sb_x$ on the substrate using an MOCVD process in which a source of Ga, a source of Sb, and a source of As are present.

2. **(Original)** The method according to claim 1, wherein x has a value corresponding to a ratio of As to Sb.

3. **(Original)** The method according to claim 2, wherein the value of x is 0.5.

4. **(Original)** The method according to claim 2, wherein the value of x is less than 0.5.

5. **(Original)** The method according to claim 1, wherein the source of Ga is TMGa or TEGa, and the source of Sb is TMSh.

6. **(Original)** The method according to claim 1, wherein the source of As is AsH_3 or TBAs.

7. **(Original)** The method according to claim 1, further including carbon doping the $GaAs_{(1-x)}Sb_x$ using CCl_4 or CBr_4.

8. **(Currently Amended)** A tunnel junction having [[of]] a p-doped $GaAs_{(1-x)}Sb_x$ layer.

9. **(Previously Presented)** The tunnel junction according to claim 8, wherein the p-doped $GaAs_{(1-x)}Sb_x$ layer is doped with carbon with a concentration greater than $1x10^{19}$ cm^{-3}.

10. **(Previously Presented)** The tunnel junction according to claim 9, further including an n-doped layer of InP, AlInAs, AlInGaAs, or InGaAsP.

11. **(Currently Amended)** The tunnel junction according to claim 10, wherein the n-doped layer is doped with a concentration greater than $5x10^{19}$ cm^{-3}, wherein the $GaAs_{(1-x)}Sb_x$ layer is doped with a concentration greater than $5x10^{19}$ cm^{-3}, and wherein the tunnel junction ~~n-doped layer~~ is less than about 10 nanometers thick.

12. **(Previously Presented)** The tunnel junction according to claim 10, wherein the n-doped layer is InP, and

wherein x has a value of 0.5.

13. **(Original)** A vertical cavity surface emitting laser, comprising:

an active region having a plurality of quantum wells, and.

a tunnel junction over said active region, wherein said tunnel junction includes a $GaAs_{(1-x)}Sb_x$ layer.

14. **(Previously Presented)** The vertical cavity surface emitting laser according to claim 13, further including an n-type bottom spacer adjacent the active region, and an n-type bottom DBR adjacent the n-type bottom spacer.

15. **(Previously Presented)** The vertical cavity surface emitting laser according to claim 13, further including an n-type top spacer adjacent the tunnel junction and an n-type top DBR adjacent the n-type top spacer.

16. **(Previously Presented)** The vertical cavity surface emitting laser according to claim 13, wherein the $GaAs_{(1-x)}Sb_x$ layer is grown by MOCVD.

17. **(Previously Presented)** The vertical cavity surface emitting laser according to claim 13, wherein the $GaAs_{(1-x)}Sb_x$ layer is doped with carbon with a concentration greater than $5x10^{19}$ cm^{-3}.

18. **(Previously Presented)** The vertical cavity surface emitting laser according to claim 13, wherein said active region includes InGaAsP or AlInGaAs.

19. **(Previously Presented)** The vertical cavity surface emitting laser according to claim 18, wherein said tunnel junction includes an n-type InP layer.

20. **(Previously Presented)** The vertical cavity surface emitting laser according to claim 13, wherein x is 0.5.

21. **(New)** The vertical cavity surface emitting laser according to claim 13, wherein the tunnel junction has a thickness of less than about 10 nm.